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MEMORANDUM

October 31, 2007

To: R. Gittell and M. Magnussan, University of New Hampshire
Representative Kaen, New Hampshire Legislature
J. Morin and J. Fontaine, NH Dept. of Environmental Services
From: Derek K. Murrow, Director, Policy Analysis
Alice Liddell, Policy Analyst
RE: Comments on University of New Hampshire Draft RGGI Modeling Report

Rockport, ME
Portland, ME
Boston, MA
Providence, RI
Hartford, CT

The following are comments from Environment Northeast (ENE) on the draft *Economic Impact in New Hampshire of the Regional Greenhouse Gas Initiative (RGGI): An Independent Assessment*, by Gittell and Magnussan at the University of New Hampshire.

Overall ENE believes that this report does a good job of summarizing RGGI and the choices the state has in terms of implementation. In particular we support and agree with a number of the reports main findings:

- *It is in the economic interest of the state of New Hampshire to participate in the Regional Greenhouse Gas Initiative*
- *The costs of RGGI will primarily be borne by ratepayers no matter how carbon allowances are allocated*
- *In general, carbon allowances should be auctioned, not directly allocated to generators*

However, we raise questions related to the assumptions used and the way energy efficiency investments were modeled and believe some of the changes suggested could impact the report's conclusions. In particular, some of these adjustments would lead to different conclusions related to investments in energy efficiency vs. business tax reductions.

Our comments are organized by report section.

3.5.1 Electricity Usage

The comments related to growth in electricity consumption are confusing, especially related to post-2005. Figure 1 summarizes New England annual electric load and peak demand, based on ISO New England data. Load growth was down significantly in 2006 and 2007 appears to be on a similar trajectory (see Figure 2). The authors may want to clarify this section, although it should not have a significant impact on their conclusions.

Figure 1: New England Annual Electric Load and Peak Demand

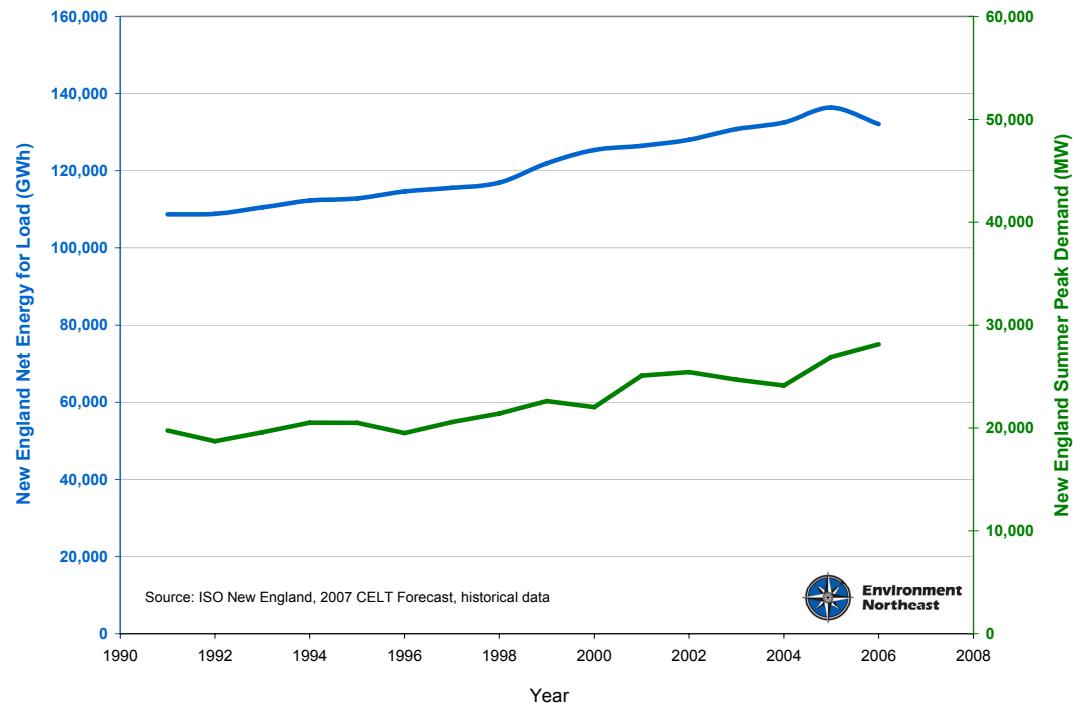
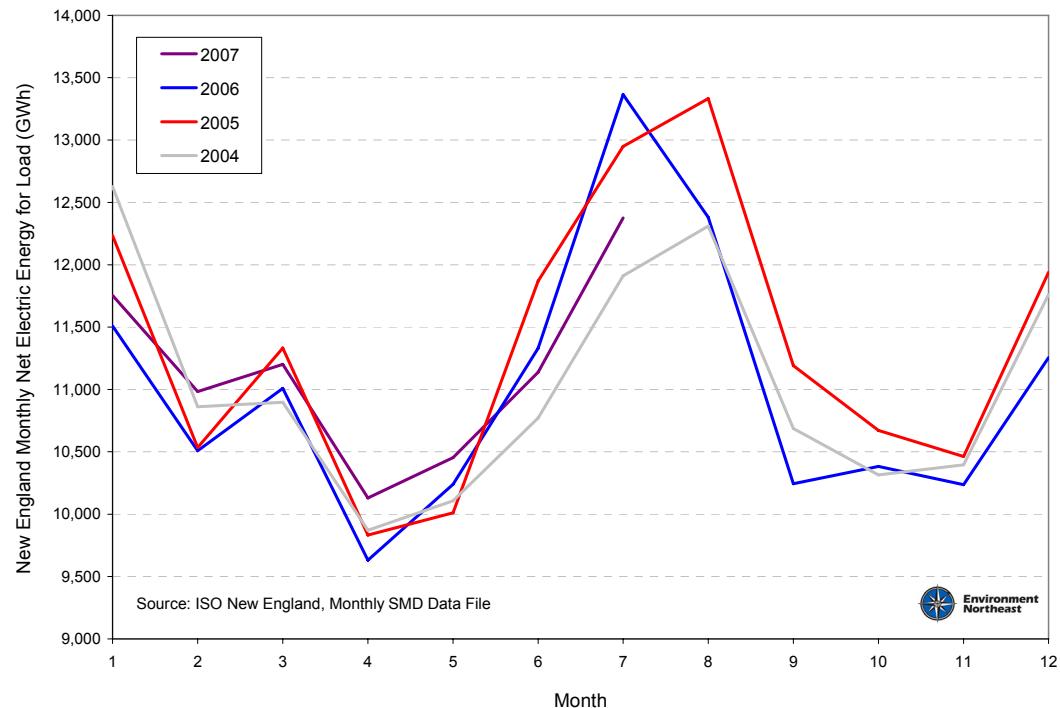


Figure 2: New England Monthly Electric Consumption



3.5.2 Carbon Emissions

The carbon emissions totals for 2004 are confusing, as EIA does not compile plant by plant emissions totals using the same data source RGGI will use (the report cites EIA). RGGI will use continuous

emissions monitoring data collected using EPA methodology. These data are available for most plants in the RGGI region and for those plants that don't have CEMS, fuel use data from EIA could be used.

We would encourage the authors to use the emissions data compiled by the RGGI states. The states report total emissions level for 2004 of 179,897,562 short tons CO₂, which makes the cap level about 4% above emissions in 2004.

If EIA data continues to be used, the exact source (EIA form number and calculation methodology) should be indicated. This is also background information and it should not have a significant impact on the authors' conclusions.

4.1 Allowances Methodology & Assumptions

One of the key findings identified through the RGGI modeling by ICF and the subsequent economic assessment using REMI, was that a regional expansion of energy efficiency investments would significantly reduce wholesale electric prices and RGGI allowance prices. This leads to large savings to all ratepayers in addition to the savings that participating efficiency program customers receive.

The UNH study develops a Base Case and a High Price Case allowance projection, but does not include a low price case tied to expanded energy efficiency investments. We would encourage the authors to include such a scenario and develop estimates of costs and benefits for this case combined with investing 100% of auction revenues in energy efficiency. As the report indicates, most states are planning to auction 100% of allowances and invest a large portion of that revenue in energy efficiency programs.

Figure 3 and 4 below indicate the change in whole sale electric power prices and allowance prices for RGGI scenarios modeled by ICF. The differences shown are between the equivalent reference case and policy case. Look in particular at the difference between the "RGGI Policy Package" and "Increased Efficiency (2X) RGGI Policy Package."

Figure 3: Forecasts of Changes in Wholesale Electric Power Price Increases Due to RGGI

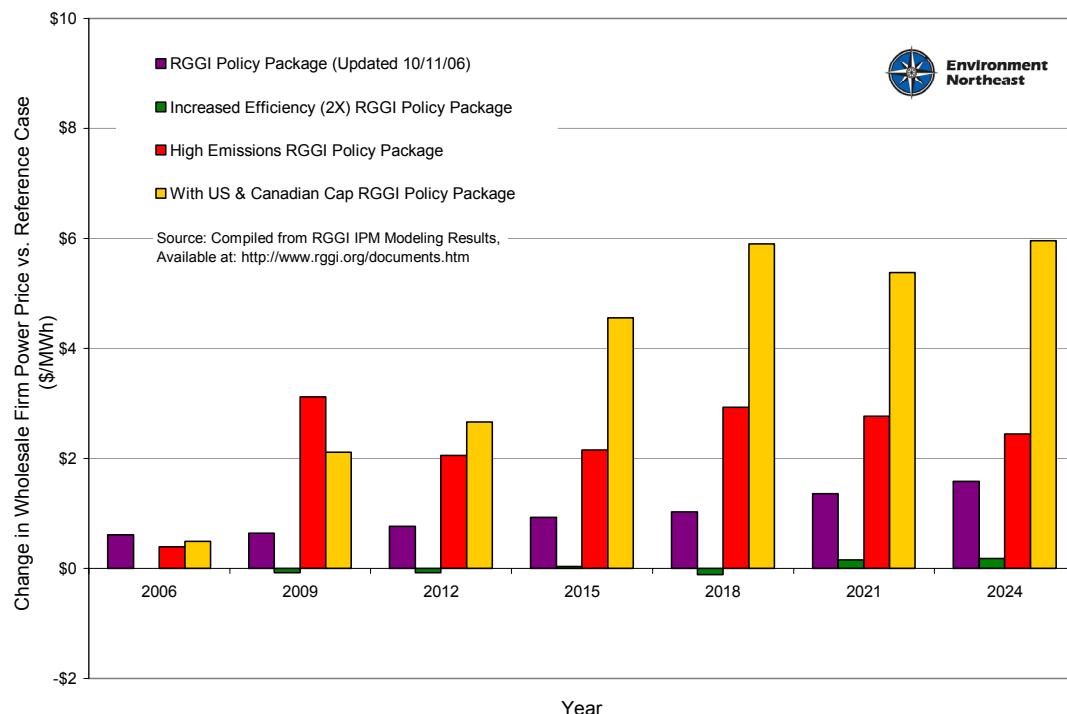
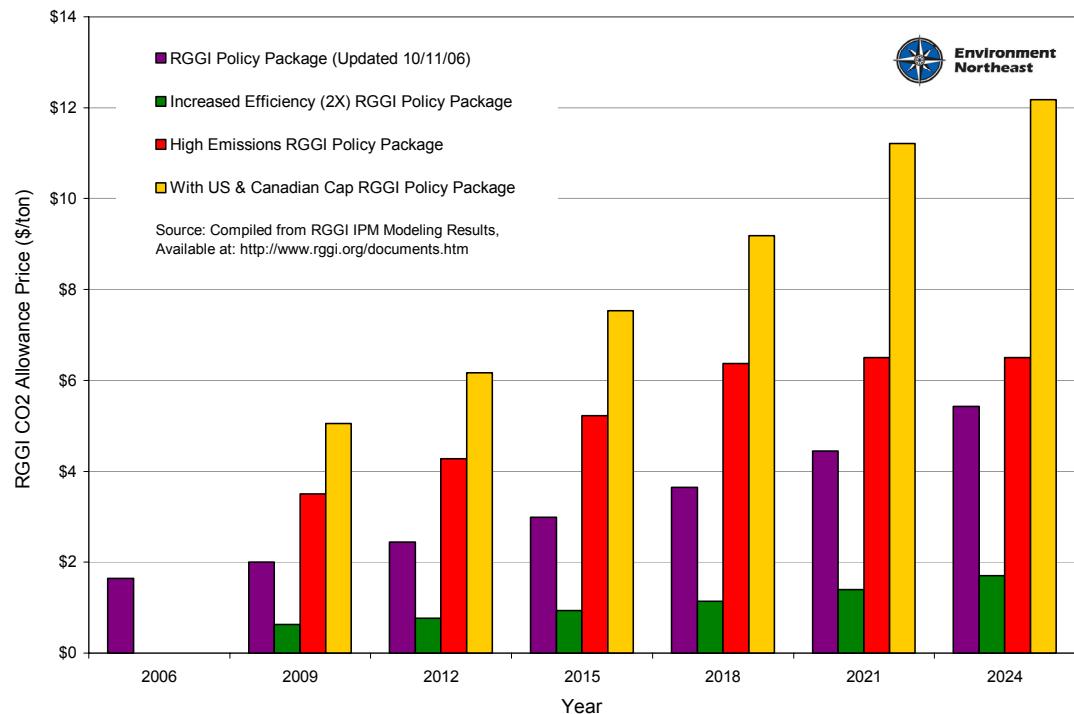


Figure 4: RGGI Allowance Price Forecasts



Expanded energy efficiency investments across the region significantly reduce electric load (consumption) with large benefits to the region in terms of reduced energy and allowance costs. This is a critical finding that is not included in the author's analysis. Including a scenario with lower electric prices and allowance prices should illustrate the full benefits of expanded energy efficiency investments and could impact the study's conclusions.

4.2 New Hampshire Electricity Forecast Methodology & Assumptions

The report indicates that, "PSNH was analyzed separately from the other utilities as it has a unique structure of owning generation in a restructured market." It would helpful to clarify if there are different methodologies used in the analysis or if PSNH was just broken out separately from the other utilities.

The use of the ISO New England CELT forecast may make sense, but these projections should be compared to those developed during the RGGI process by ICF. In particular, if a low cost scenario is run that includes energy efficiency, then it may make more sense to use the ICF forecasts, as that model integrates all variables in one analysis.

4.4 Energy Efficiency

See comments above related to the need to include a low price scenario that reflects expanded energy efficiency investments across the region.

The study appears to have used efficiency investment costs that are equivalent to the cost of residential programs in New Hampshire. **Average program cost should be used. The average program costs based on the same NH report cited by the authors indicates that total efficiency investments of**

\$17,570,922 yielded lifetime energy savings of 641,270,877 kWh for a cost per lifetime kWh of \$0.027.¹

4.5 NH RGGI Scenario Methodology & Assumptions

We are confused about the scenarios or policy choices the UNH team has chosen to model. Stakeholders and regulators have been talking for some time about using auction revenues to reduce the cost of the RGGI program to the region's ratepayers. This has led to significant discussion of energy efficiency investments, electric rebates, or other electric sector investments. The option to reduce corporate taxes with RGGI allowance revenue is very surprising. Tax shifting options are plentiful, but the state could choose to invest the RGGI revenues in just about any state program or policy. Why the tax scenario and not other investments from education to healthcare, much less keeping the investments in the electric sector? Also why corporate taxes vs. other tax reduction options? The rationale for this choice should be explained in the report.

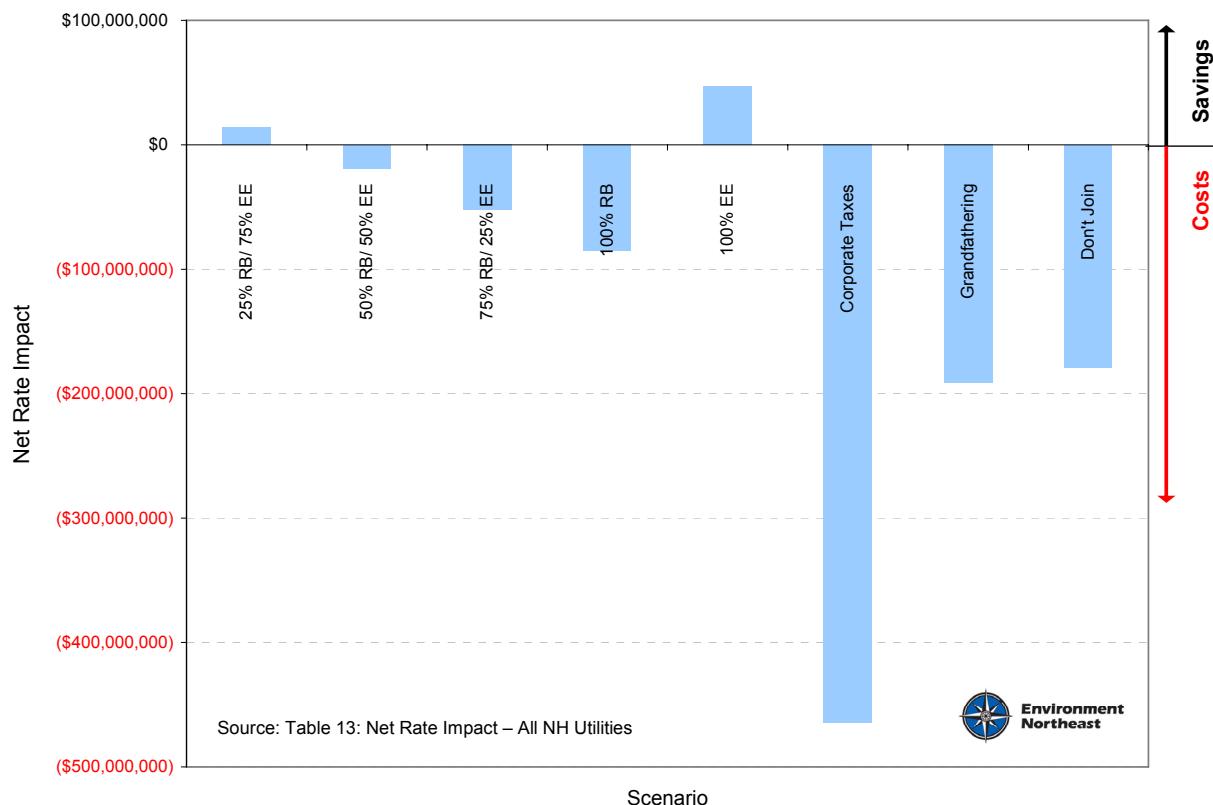
5.2 Statewide Utility Cost Impact for Scenarios Evaluated

The utility and ratepayer cost and benefit numbers should be changed to reflect average energy efficiency costs in the state (see discussion above) and a low cost scenario or sensitivity should be included for the 100% energy efficiency run (see discussion above).

A graph should be included that summarizes the different scenarios in terms of total rate impacts. Figure 5 below is an example of such a graph taken from the data in the draft report (note that we have reversed what is positive and negative with costs being negative and savings being positive). We believe this kind of presentation along with the graph included in the report that examines the results by modeling period gives the full picture of the impact of various policy choices.

¹ "Reports of the Legislative Oversight Committee on Electric Restructuring: Results and Effectiveness of the System Benefits Charge," State of New Hampshire Public Utilities Commission, October 2, 2006, Page 3, Available online at <http://www.puc.state.nh.us/Electric/100106%20LI-SBC%20legislative%20report.pdf>

Figure XX: Net Rate Impact – All NH Utilities



As the figure above indicates, utility ratepayers would bear the burden of a reduction in corporate taxes. **The tax policy proposal appears to shift benefits from utility ratepayers who would receive savings under the energy efficiency investment scenarios to corporations who would benefit under the corporate tax reduction proposal. As the authors' modeling indicates, there may be net economic benefits associated with the corporate tax reductions scenario, but this shifting of costs and benefits should be more thoroughly discussed in the report.**

The discussion related to direct allocation of allowances to PSNH is very misleading and confusing. It supports a give away of allowances but does not address that fact that consumers will likely pay for the allowance costs in all cases. It does not address the complicated situation in New Hampshire with the regulated utility still owning generation. If the PUC has authority to build the granting of free allowances to PSNH into their ratemaking and thus recover the costs on behalf of ratepayers, then the conclusion would seem more reasonable; but PSNH sells power in the competitive wholesale markets as well and this should be addressed in the discussion. Since most RGGI states that have considered this issue have chosen to auction 100% of the allowances, if New Hampshire were to give away allowances for free market distortion and an un-level playing field could result. This should be noted and we believe it supports the need to auction 100% of allowances. In general the comments on direct allocation to PSNH need to be supported and clarified.

5.4 NH Economy-Wide Impact of RGGI: Economic Modeling Result Using REMI

It is hard to evaluate the REMI analysis completed for this report as the model and assumptions are not described. REMI is a powerful tool that can adequately model energy efficiency investments, but the

methodology used has a significant impact on results. We have advised and reviewed REMI energy efficiency modeling for Connecticut completed by NESCAUM and REMI, Inc.² and also the REMI work done by MA DOER for the RGGI process³ and we encourage the UNH team to review their methodology and assumptions.

ENE believes energy efficiency modeling using REMI should address the following issues and assumptions and spell them out in the report:

- Reference case REMI assumptions
- Increased wholesale electric power costs assumed due to RGGI (also include a low cost scenario as discussed above)
- Increased energy efficiency investments should not be a cost as the funds are derived through the auction and built into wholesale electric price assumptions
- Reduced energy consumption and consumer bills attributable to the energy efficiency investments
- Increased investments in other parts of the economy as consumers spend energy dollars in other sectors after receiving savings associated with energy efficiency program expansion
- Reduced imports of fossil fuels and the corresponding flow of dollars out of the region
- Reduced revenue to electric generators, but not reduced revenue to electric transmission (FERC rates adjust for this) or distribution companies (fixed distribution costs are regulated and companies will come in for a rate case, request lost revenues be recovered, or request decoupling to ensure most of these costs are paid in any case) – note this is often improperly modeled in REMI and has a large impact on final economic results

ENE believes that adjusted REMI runs for energy efficiency will fully capture the potential benefits to the New Hampshire economy.

Thank you for the opportunity to comment on this report and feel free to contact us with any questions or comments you might have.



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Northeast**

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Environment Northeast is a nonprofit research and advocacy organization focusing on the Northeastern United States and Eastern Canada. Our mission is to address large-scale environmental challenges that threaten regional ecosystems, human health, or the management of significant natural resources. We use policy analysis, collaborative problem solving, and advocacy to advance the environmental and economic sustainability of the region.

² REMI, 2004, *Economic Impact of Oil and Natural Gas Conservation Policies*, Prepared for U.S. Environmental Protection Agency and the State of Connecticut, Available at:

http://ctclimatechange.com/documents/Appendix9_REMI_HeatingOilandNaturalGasConservationFunds_CCCAP_2005_000.pdf

³ Economic Development Research Group and MA DOER, 2005, *REMI Impacts for RGGI Policies based on the Std REF & Hi-Emission REF*, Available at: http://www.rggi.org/docs/remi_stakeholder_presentation_11_17_05-final.ppt